DOCUMENT RESUME

ED 331 987 CE 057 903

TITLE	Surgical Technician Curriculum.
INSTITUTION	EASTCONN Regional Educational Services Center, North Windham, CT.
SPONS AGENCY	Connecticut State Dept. of Education, Middletown. Div. of Vocational, Technical and Adult Education.
PUB DATE	89
NOTE	80p.
PUB TYPE	Guides - Classroom Use - Teaching Guides (For Teacher) (052)
EDRS PRICE	MF01/PC04 Plus Postage.
DESCRIPTORS	*Allied Health Occupations Education; Behavioral Objectives; Competence; *Competency Based Education; *Course Content; Course Descriptions; Job Skills; Medical Services; Postsecondary Education; Skill Development; State Curriculum Guides; Surgery; *Surgical Technicians; Technical Occupations; Vocational Education
IDENTIFIERS	Connecticut

ABSTRACT

This curriculum guide, developed for 10-month postsecondary programs in Connecticut, outlines a program for training surgical technicians. The program is divided into two components, didactic and clinical. Following a list of six general objectives of the program, the guide provides a curriculum outline by major areas with the number of hours needed for each area. Major areas covered in the curriculum are the following: orientation to the operating room; safe patient care; intraoperative techniques; supplies and equipment; basic sciences; and supervised experience in surgical technology and surgical procedures. The guide then lists the competencies that students are expected to develop in each of these areas of the program and outlines the curriculum for the 10 months. A bibliography lists texts and references, audiovisuals, supplies and equipment, publications and periodicals, anatomical models, and charts, by subject area. Addresses for publishers of audiovisual materials are given. (KC)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED331987

SURGICAL TECHNICIAN CURRICULUM

PREPARED BY EASTCONN
ROUTE 6 (HAMPTON)
NORTH WINDHAM, CT 06256

PREPARED FOR:

CONNECTICUT STATE DEPARTMENT OF EDUCATION
DIVISION OF VOCATIONAL, TECHNICAL AND ADULT EDUCATION
VOCATIONAL-TECHNICAL SCHOOL SYSTEM
MIDDLETOWN, CONNECTICUT

PROJECT DIRECTOR
DONALD THOMPSON

PROJECT STAFF
JEAN PORTER, Chairperson
CAROLE KING

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

This document has been reproduced as received from the person or organization originating it.

Minor changes have been made to improve reproduction quality.

Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

BEST COPY AVAILABLE

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

V Dunn

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

THIS PROJECT WAS SUPPORTED BY FUNDS MADE AVAILABLE TO CONNECTICUT THROUGH P.L. 98-524

ALL OPINIONS EXPRESSED REFLECT THE VIEWS OF THE AUTHORS AND ARE NOT NECESSARILY THOSE OF THE CONNECTICUT STATE DEPARTMENT OF EDUCATION

1989

CE057903

PROGRAM DESCRIPTION

The Surgical Technician Program is a ten-month, postsecondary program. The program is divided into two essential components, didactic and clinical. Students are assigned to a hospital for clinical experience which provides on-the-job experience under the instruction and supervision of medical and surgical professional leaders. Thus, the clinical facilities become an extension of the school.

Surgical Technicians are particularly qualified to function as team members with nurses and surgeons (under the supervision and responsibility of the Operating Room Manager/Director, a Registered Nurse) thus assuring the patient optimum care.

Upon graduation the students receive a Surgical Technician pin and a certificate from the Vocational-Technical School recognizing satisfactory completion of the program. Students are then eligible to sit for the National Certification Examination for Surgical Technologists.

TABLE OF CONTENTS

General Objectives 1

Curriculum Outline by Major Area 2

Competencies 3

Clinical Competencies 6

Curriculum Outline

- Orientation to the Operating Room 8
- Safe Patient Care 15
- Intraoperative Techniques 29
- Supplies and Equipment 38
- Basic Sciences 45
- Supervised Experience 62

Bibliography 70

GENERAL OBJECTIVES

At the completion of the Surgical Technician Program, the graduate will be able to:

Apply principles of anatomy, physiology, microbiology and pathology to perioperative patient care;

Perform technical skills required to be a safe and effective member of the surgical team;

Demonstrate awareness of the implications of ethical, moral and legal responsibilities relative to patients, co-workers and place of employment;

Demonstrate self-understanding in personal growth and development;

Communicate effectively with patients and the Health Care Team;

Sit for the Certification Examination administered by the National Certifying Board for Surgical Technologists.

CURRICULUM OUTLINE BY MAJOR AREA

1.	Orientation to the Operating Room	60 Hours
2.	Safe Patient Care	150 Hours
3.	Intraoperative Techniques	200 Hours
4.	Supplies and Equipment	130 Hours
5.	Basic Sciences	330 Hours
6.	Supervised Experience in Surgical Technology and Surgical Procedures	500 Hours

COMPETENCIES

Orientation to the Operating Room

The student will be able to:

Explain in detail the role of the Surgical Technician relative to patients and the surgical team;

Explain ethical, moral, and legal responsibilities relative to patients and co-workers;

Demonstrate proficiency in logical word analysis, word building and spelling medical terminology necessary to other courses being studied concurrently;

Demonstrate behavior that exhibits insight;

Develop a summary of individual perceived stressors and a plan for resolving/modifying behavior;

Contrast program objectives to individual career objectives.

Safe Patient Care

The student will be able to:

Explain the principles of physical and psychological preparation of the preoperative patient;

Identify and explain the mechanics and agents used to anesthetize the patient;

Demonstrate the knowledge and ability to perform all aspects of preoperative preparation of the patient in order to meet the needs of the patient and the surgeon.

Intraoperative Techniques

The student will be able to:

Demonstrate the principles of asepsis and surgical conscience into definite and appropriate patterns of behavior;

Demonstrate expertise in using aseptic technique within the perioperative role;

Demonstrate proficiency concerning the methods of sterilization, packing, storing and dispensing surgical supplies;

Utilize aseptic principles for maintaining environmental control of the operating room suite.

Supplies and Equipment

The student will be able to:

Recognize and identify classifications of instruments, sutures and needles that are used in surgical procedures;

Differentiate between types of surgical packings and dressings, catheters, drains, tubes and collecting mechanisms;

Demonstrate principles concerning the use of biomedical equipment used in the operating room.

Basic Sciences

The student will be able to:

State the principles concerning disease causation, prevention of disease and the composition of matter;

Utilize principles of normal body structure and normal body function in order to generate understanding deviations from the normal;

Correlate concepts of adequate nutrition and optimum health for patients and Health workers;

Explain the components of Surgical Pharmacology and the role of the Surgical Technician relative to medications used during the intraoperative phase;

Explain the functions of lasers and demonstrate safety measures imperative to laser use;

Prepare a resume and complete job application forms using the computer;

Demonstrate how to prepare for and respond in an employment interview;

Supervised Experience in Surgical Technology and Surgical Procedures

The student will be able to:

Demonstrate a rounded concept of the duties inherent in surgical team membership;

Demonstrate the ability to perform technical skills required of a Surgical Technician;

Demonstrate "surgical conscience" by conforming to the highest quality of aseptic technique during the perioperative period;

Identify and explain the total organizational structure of the hospital, personnel, physical facilities and, in particular, the Operating Room Department.

Participate positively in verbal and non-verbal communication with patients and co-workers;

Correlate principles and practices learned in the classroom with actual experience in order to demonstrate a safe level of practice and knowledge.

CLINICAL COMPETENCIES

In order to pass a skill, the student must perform with 100% accuracy:

- o Identify O.R. Equipment
- o Fasten Safety Strap - Table
- o Manipulate O.R. Table
- o Adjust Light Handles
- o Perform Housekeeping Duties
- o Maintain Good Body Mechanics
- o Turn Patient
- o Lift Patient
- o Transfer Patient
- o Handle Linen - Bed/Stretcher
- o Identify O.R. Supplies
- o Prepare Items for Autoclave
- o Wrap for Sterilization
- o Operate Autoclave
- o Open Sterile Supplies (Table)
- o Open Sterile Supplies (Hand)
- o Position Patient (10 Positions)
- o Perform Active Range of Motion
- o Perform Passive Range of Motion
- o Measure T.P.R.
- o Measure B.P.
- o Perform Shave Prep
- o Perform Scrub Prep
- o Don Surgical Attire
- o Scrub - Aseptic Technique
- o Gown Self
- o Gown Another
- o Tie Gown of Another
- o Perform Gloving, Closed Method
- o Perform Gloving, Open Method
- o Perform Gloving - Self
- o Perform Gloving - Another
- o Remove Gloves
- o Transport - Gurney
- o Transport - Wheelchair
- o Transport - Bed
- o Verify Pre-Op Check List
- o Check Patient Identification
- o Identify Physical Examination Equipment
- o Demonstrate Auscultation Technique
- o Demonstrate Palpation Technique
- o Demonstrate Percussion Technique
- o Demonstrate Inspection Measures
- o Assemble Syringe, Needle
- o Aspirate Solution via Syringe from Vial, Ampoule
- o Measure Specified Doses
- o Pour Solution into Basin

- Assemble Atomizer
- Assemble Bulb Syringe
- Place Sandbags
- Apply Elbow Restraints
- Apply Armboards
- Adjust Ether Screen
- Identify Gas Machine Components
- Perform C.P.R.
- Drape Laparotomy
- Drape for Perineal Procedure
- Operate Microscope
- Receive Specimen
- Perform Flipping Technique
- Set Up Mayo Stand
- Set Up Back Table
- Arrange Sutures
- Make Suture Book
- Arrange Instruments
- Set Up Prep Table
- Utilize Needle/Blade Book
- Remove Items, Autoclave
- Affix Suction
- Affix Bovie
- Identify Instruments
- Clean Instruments
- Pass Instruments
- Perform Hand Signals for Passing
- Handle Suture Materials
- Hand Sutures/Ligatures to Another
- Pass Dissectors
- Apply and Remove Blade
- Set Up for Laparotomy
- Utilize Communication Skills
  --Verbal
  --Non-verbal

CURRICULUM

Orientation to the Operating Room

I. Introduction to the Operating Room Team

A. Purpose of the Program
1. Introductions
2. Rules and policies
3. School tour
4. Objectives and philosophy of vocational-technical education
5. Objectives and philosophy of course

B. Study Habits
1. Motivation
a. interest
b. learning satisfies a need
c. success

C. Qualifications of Surgical Technician
1. Personality
a. appearance, grooming
b. cleanliness
2. Understanding
a. attitudes
b. values
c. social behavior
3. Attitude
a. patience
b. kindness
c. empathy
d. predictable behavior
e. getting along with others
f. stamina
g. emotional stability
h. respect
i. sense of humor
j. team spirit
4. Personal health
a. physical
b. mental
c. social
5. Skills
a. cognitive
b. psychomotor
c. affective domain
6. Psychomotor skills
a. dexterity
b. accuracy
c. developing rapidity
7. Education and certification
a. goals, objectives
b. certification exam
c. CEUs
d. local and national organizations

II. Health Care Team

A. Team Concept
   1. Common goals
   2. Total patient dependence on O.R. team

B. Sterile Team Members
   1. Surgeon
   2. Assistants
      a. intern
      b. resident
      c. physician's assistant
   3. Scrub person
      a. technician
      b. nurse

C. Unscrubbed Team Members
   1. Anesthesiologist or nurse anesthetist
   2. Circular
   3. X-Ray personnel
   4. Pump technician
   5. Clergy
   6. Pathologist
   7. Biomedical engineer

D. Staff Personnel
   1. Supervisor
   2. Head nurse
   3. Clinical instructor
   4. Staff nurse
   5. Surgical technician
   6. Staff physician
   7. Aide/porter
   8. Workroom assistant
   9. Unit clerk/secretary

E. Meeting Objectives
   1. Patient: essential presence

F. Division of Duties
   1. Preliminary preparations
   2. Patient
   3. Suite
   4. Supplies/equipment

G. Scrub Person
   1. Sterile supplies
   2. Intra-op procedures
   3. Post-op duties

H. Circulator
   1. Manages case with surgeon and anesthetist
   2. Anticipates patient's needs, team's needs
   3. Obtains supplies and equipment

I. Clean Up Procedures
   1. Team effort
   2. Specific duties

J. The Surgical Technician
    1. Functions while scrubbed
        a. O.R. set up
        b. anticipates and passes instruments
        c. may act as first assistant
        d. assists in counts
        e. identifies and preserves specimens
    2. Functions while unscrubbed
        a. open sterile supplies before case
        b. assist with patient positioning
        c. prep patient
        d. assist anesthesiologist or anesthetist as necessary
        e. assist with sponge, needle, instrument counts
        f. tie gowns of scrubbed personnel
        g. adjust lights
        h. handle non-sterile items
        i. assist in transferring patient
        j. preserve specimens
    3. Other functions
        a. assist with ordering and stocking supplies
        b. prepare instruments for sterilization
        c. assist with patient transportation

III. Introduction to the Principles of Surgical Conscience

A. Definition
    1. Foundation
    2. A personal value
B. Areas Affected by Surgical Conscience
    1. Patient protection
    2. Moving and positioning patient
    3. Environmental protection
    4. Protection from psychological insult
    5. Anxiety and fear
    6. Unnecessary time under anesthesia
C. Aseptic Technique
    1. Optimum dedication to patient protection
    2. Individual responsibility
    3. Team involvement
    4. Implications of breaks in techniques
    5. Praise for admitting error
    6. Dictates of conscience
    7. Pride in self and accomplishment

IV. Ethical Responsibilities

A. Definition
B. Examples
    1. Honesty
    2. Surgical conscience
    3. Reporting incident
C. Confidentiality
    1. Patient's personal life
    2. Procedures
    3. Public figure

D. Respect
   1. Patients
   2. Co-workers
   3. Gossip
   4. Discussing problems
E. Opinions
   1. Are your own
   2. Medical judgments not within realm of responsibility
   3. List doctor selection without recommendation
F. Loyalty
   1. Self
   2. Co-workers
   3. Employer
   4. Profession

V. Moral Responsibilities

A. Definition
B. Trust
   1. Patient entrusts life to team
   2. Honor that trust
C. Patient's Wishes
   1. Take them seriously
   2. Notify charge person of same
D. Religious Beliefs
   1. Honor them without question
   2. Your right to your own
   3. Honor requests for clergy
   4. Blood transfusions may not be allowed by some
   5. Rites of the sick
   6. Medals must not be forcefully removed
E. Personal Religious Convictions
   1. Consider when accepting job
   2. You are entitled to convictions
   3. Be proud of your convictions

VI. Legal Responsibilities

A. Definition
B. Types
   1. Malpractice
      a. injudicious treatment resulting in injury or death
      b. actions not within realm of responsibility
   2. Negligence
      a. short cuts
      b. omission of act which reasonable person would do
      c. commission of act which reasonable person would not do
      d. patient identification
C. Surgical Technician Responsibilities
   1. Responsible for own actions
   2. Stay within scope of practice limitations
   3. Perform accurately, according to principles
   4. Share "count" responsibility
   5. Medication responsibility does not include administering to patient

D. Criminal Responsibility
    1. Patient property
    2. Hospital property
    3. Practicing medicine
E. Common Areas of Concern
    1. Abandonment of patient
    2. Specimens
    3. Surgical consent
    4. Defamation
    5. Reporting incidents
    6. Documenting incidents
    7. Patient relations
    8. Patient privacy
    9. Dying declarations and nuncupative wills
    10. Errors and omissions insurance
F. Other Areas of Concern
    1. Legal representation
    2. Subpoena
    3. Summons
G. Recapitulation
    1. Familiarize self with guidelines
    2. Follow guidelines explicitly
    3. Recognize possible situations
    4. Prevent legal implications

VII. Medical Terminology

A. Word Elements
    1. Roots
    2. Combining forms
    3. Combining vowels
    4. Prefixes
    5. Suffixes
B. Word Building
    1. Nouns
    2. Adjectives
    3. Verbs
C. Word Analysis
    1. Components/elements
    2. Different elements with same meaning
        a. dermato
        b. cutaneo
    3. Two similar forms having same meaning
        a. hemo
        b. hemato
    4. Accents
    5. Pronounciation
D. Directions, Planes, Regions and Cavities
    1. Body directions antero to ventro
    2. Body positions erecto to supino
    3. Abdominal regions epigastric to quadrant
    4. Body cavities abdominal to vertebral
    5. Directional planes corono to tranverso

D. Surgical Terminology
    1. Surgery
        a. chirurgery to post-operative
    2. Surgical asepsis
        a. autoclave to sterility
    3. Preoperative medication
        a. hypodermic to parenteral
    4. Anesthesia
        a. anesthesia to unconsciousness
F. Surgical Procedures
    1. Adenectomy to thoracoplasty
G. Surgical Wound Healing
    1. Adhesion to keloid

VIII. Interpersonal Relations

A. Definition
    1. Interpersonal, intrapersonal
    2. Psychology
    3. Communication
    4. Attitudes
    5. Behavior
B. Basic Human Needs
    1. Maslow's hierarchy
C. Human Behavior
    1. Influences
    2. Personality
    3. Emotions
D. Maintaining Emotional Homeostasis
    1. Defense mechanisms
    2. Reactions
E. Stress
    1. Definition
    2. Defining the problem
    3. Defining the goal
    4. Factors relating to alienation
    5. Factors relating to defensiveness
F. Coping Measures
    1. Attending, responding, personalizing
    2. Factors related to reducing hostility and defensiveness
    3. Developing trust, supportiveness
    4. Helping
    5. Identifying alternatives
G. Practicing Effective I.P.R.
    1. Communication
        a. verbal
        b. non-verbal
    2. Sending process
    3. Channels
    4. Receiving process
    5. Skills of observation
    6. Assertive behavior
    7. Barriers to communication
    8. Methods of interaction

H. Team communication
    1. People problems
    2. Task problems
    3. Problem solving skills
I. Increasing Cohesiveness
    1. Commonalities
    2. Salient values
    3. Re-identification of goals
    4. Rewards of team effort
J. Building Self-Esteem
    1. Anchoring beliefs, values and attitudes
    2. Being in charge of self
    3. Developing a philosophy
K. Optimum Dedication to Patient Protection
L. Death and Dying
    1. Emergency department death
    2. May be student's first experience with death
    3. Little time for interaction with patient
    4. Little time for grief, loss counseling with families
    5. Denial frequent
    6. Behavior of family, significant others
        a. rage
        b. physical violence
        c. shock
        d. remorse and anger
        e. quiet acceptance
M. Implications of Verbal Communication and Touch
N. Religious Comfort
O. Family/Significant Others
    1. Provide privacy, comfort and staff support
    2. Viewing body encouraged
    3. Patient's wishes regarding organ donation
    4. Use of tranquilizers unwise
P. O.R. Personnel
    1. Provide for expression of anger, frustration, concerns
    2. Feelings unexpressed for days are destructive
    3. Reinforcement needed
    4. Personal philosophy, convictions, coping measures
    5. Expert technical skill does not replace "caring"
Q. Responsibilities
    1. Supervisor notified stat
    2. State law and hospital policy dictate how body is cared for
    3. Check identification and follow procedure book
    4. Body should be refrigerated within one hour of death
    5. Arrange for transportation
    6. Release form signed by R.N.
    7. Consideration in preventing others from seeing body and/or stretcher bearing it away
R. Feelings Regarding Sexuality
    1. Sexuality - definition

2. Issues: physical health problems
    a. colostomy
    b. mastectomy
    c. paralysis
    d. venereal disease
3. Reproduction
    a. contraception
    b. abortion
    c. infertility
4. Sexual performance
5. Sex role function
6. Homosexuality

S. Facilitating Communications
1. Being comfortable with subject
2. Being knowledgeable
3. Listening, receiving, understanding
4. Offering alternatives
5. Refer for professional counseling prn

T. Sexual Expression Involves More Than Psychologic Response

Safe Patient Care

I. Preoperative Preparation and Care of the Patient

A. Psychological Considerations
1. Fears
    a. death
    b. pain
    c. anesthesia
    d. mutilation
    e. cancer
    f. exposure
    g. unknown
2. Anxieties
    a. financial concerns
    b. family concerns
    c. job loss
3. Special pediatric concerns
    a. separation from family
    b. anesthesia
    c. fears of mutilation
4. Behavior identification
    a. uncooperative
    b. regressive
    c. resentful
    d. hostile
    e. withdrawn
    f. depressed
    g. dependent
    h. suspicious
    i. questioning
    j. guilt, shame, punishment

B. Role of Health Care Team
   1. Identify and understand
   2. Listen
   3. Comfort
   4. Treat patient as person
   5. Call by name
   6. Explain procedures and actions
   7. Reassure truthfully
   8. Refer to social service, clergy, etc.
   9. Use gentleness, kindness, firmness, prn
   10. Optimum dedication to patient protection

II. Evaluation of the Pre-Op Patient

A. Necessary Routines
   1. Hospitalization prior to surgery
   2. Short-term surgery
   3. Family history
   4. Personal history
   5. Physical examination
      a. eye, ear, nose, throat
      b. reflexes
      c. heart
      d. lungs
      e. palpation, percussion, auscultation, inspection
   6. Laboratory evaluations
      a. blood analysis C.B.C.
      b. urinalysis
         1. RBCs
         2. WBCs
         3. cast cells
         4. protein
         5. glucose
         6. specific gravity
   7. Other tests
      a. chest x-ray
      b. electrocardiogram
   8. Forms and permits
      a. surgical permit
      b. signed by patient or guardian
      c. witnessed
      d. signed before pre-op medication given
      e. statement of patient's understanding

III. Routine Physical Procedures

A. Shave Prep
b. Cleansing Enema
C. N.P.O.
D. Bath
E. Sedation

F. Day of Surgery Checklist
    1. Vital signs
    2. Dentures, eyeglasses, lenses
    3. Hairpins, jewelry, prostheses
    4. Wedding band and religious medals
    5. Make-up and nail polish
    6. Bladder
    7. Pre-op medications
    8. Side rails
    9. O.R. cap and leggings
    10. Recheck patient identification
G. Transportation to O.R.
    1. Gurney
    2. Transfer safety
    3. Tubes, catheters move with patient
    4. I.V. bottles at foot
    5. Restraint strap
    6. Side rails
    7. Patient travels feet first
    8. Head first in elevator
    9. Pull gurney through swinging doors
H. Arrival in surgery
    1. Holding area greeting
    2. Identification check
    3. Chart check
        a. surgical check list
        b. surgical consent
I. Transfer to O.R. Table
    1. Holding area to O.R. suite by gurney
    2. Two people required for transfer
    3. Safety aspects
        a. assist and receive patient
        b. tubes/catheters
        c. restraint strap

IV. Anesthesia

A. Definition
B. Types
    1. Conduction
    2. General
C. Conduction
    1. Local infiltration
    2. Nerve block
    3. Topical
    4. Epidural
    5. Caudal
    6. Spinal
D. Local
    1. Injected into tissues
    2. May be deep tissue if surgery not extensive
    3. High levels are toxic

4. 25-30 gauge needles
5. Scrub person tallies amount
6. Scrub person refills syringe
7. Safety aspects
    a. no metal containers
    b. epinephrine added
    c. measuring
    d. technique
8. Commonly used
    a. Procaine
    b. Lidocaine
    c. Mepivacaine
    d. Tetracaine

E. Nerve Block
1. Large single nerve, nerves
2. Not necessarily at immediate surgical site
3. Nerve impulses do not reach brain
4. Surgery of fingers and toes
5. RX of tic douloureux, vascular insufficiency
6. Commonly used
    a. Lidocaine
    b. Mepivacaine
    c. Tetracaine

F. Topical
1. Numbs superficial nerve endings
2. Mucous membrane
3. Swab, spray, drops
4. Endoscopic procedures
5. commonly used
    a. Lidocaine
    b. Cocaine
    c. Tetracaine
    d. Benzocaine

G. Epidural
1. Epidural space of spine
2. Bathes nerve roots
3. No contact between spinal fluid and anesthetic
4. Commonly used
    a. Procaine
    b. Lidocaine
    c. Mepivacaine
    d. Tetracaine

H. Caudal
1. Type of epidural
2. Ideal for obstetrics and perineal procedures
3. May be continuous
4. Commonly used
    a. Procaine
    b. Lidocaine
    c. Mepivacaine
    d. Tetracaine

I. Spinal
   1. Subarachnoid space at L 4 or 5
   2. Agent does come in contact with spinal fluid
   3. Positioning
      a. lateral
      b. orthopneic
   4. Commonly used
      a. lower pelvis surgery
      b. caesarean section
      c. hernia repair
      d. surgery of lower extremities
   5. Commonly used
      a. Procaine
      b. Lidocaine
      c. Tetracaine

V. Adverse Reactions to Anesthesia

A. Conduction
   1. High rate of allergies
   2. Topicals, highest rate
   3. Team members alert
   4. Monitor vital signs every fifteen minutes during procedure
   5. Not all sx. occur in all patients
   6. Relative overdose most common complication
   7. Sx.
      a. signs of shock
      b. sleepy, unresponsive patient
      c. bradycardia or tachycardia
      d. hypotension
      e. fainting
   8. Rx.
      a. discontinue drug
      b. oxygen
      c. C.P.R. prn

VI. General Anesthesia

A. Causes Unconsciousness
B. Four Stages
   1. Induction
   2. Excitement
   3. Surgical plane (relaxation)
   4. Danger
C. Methods of Administration
   1. Gas machine
      a. endotrachial tube or mask
      b. rebreathing bag
      c. closed circle system
   2. Open drop method
      a. wire mesh
      b. inaccurate - seldom used
      c. ether used traditionally

3. Intravenous
    a. direct access to circulatory system
    b. induction anesthesia
    c. antibiotics and I.M. meds given
    d. safety aspects

VII. General Anesthetic Agents

A. Ether and Cyclopropane Discontinued
B. Inhalation Method
    1. Enflurane (Ethrane)
    2. Halothane (Fluothane)
    3. MethoxyFlurane (Penthrane)
    4. Nitrous oxide commonly used
C. I.V. and I.M. Methods
    1. Innovar - I.V. or I.M.
    2. Ketamine - I.V. or I.M.
    3. Pentothal - I.V.
D. Neuromuscular Blocking Agents
    1. Commonly given during surgery
    2. Given I.V.
    3. Allow less anesthesia to be given
    4. Commonly used
        a. Pavulon
        b. d-tuocurarine
        c. Flaxedil
        d. Anectine

VIII. Pre-Op Medications

A. Characteristics
    1. Given one hour pre-op
    2. Relax patient
    3. Smooth induction
    4. Dry mucous membranes
B. Classifications
    1. Barbituates
        a. hypnotics and sedatives
        b. Nembutal
        c. Seconal
    2. Opiates
        a. analgesics and narcotics
        b. Metapon
        c. Demerol
        d. Morphine
    3. Belladonna
        a. inhibit mucous secretions
        b. Atropine
        c. Scopolamine
    4. Tranquilizers
        a. Valium
        b. Vistaril
        c. Chlorpromazine
    5. Safety aspects
    6. Prevention and treatment of complications

IX. Fire Hazards Related to Surgery

- A. Flammables Banned from O.R.
- B. Oxygen Elevates Risk of Fire
- C. Friction Causes Static Electricity
- D. Common Path of Conduction
- E. All Equipment Grounded
  1. Conductive casters
  2. Conductive rubber hoses
- F. Gas Lines Outside of Surgical Suite

X. Choice of Anesthetic

- A. Factors Considered
  1. Patient safety
  2. Convenience of surgeon
  3. Patient comfort
- B. Conduction Anesthesia
  1. Very young or very old cannot cooperate
- C. General Anesthesia
  1. Debilitated patient not good risk

XI. Positioning the Surgical Patient

- A. The O.R. Table
  1. Manipulating
  2. "Break the Table"
  3. Tilt, raise, lower
  4. Removable sections
  5. Surgical Technician must know how to manipulate table
- B. Moving Anesthetized Patient
  1. Ask anesthesiologist's position
  2. Provide enough help
  3. Pad bony prominences/delicate areas in contact with table
  4. Manipulate joints gently
  5. Avoid unnecessary exposure
  6. Align neck and spine
  7. Secure arm/hand in draw sheet
  8. Move slowly and deliberately
  9. Have accessories available before induction
  10. Protect I.V. lines, catheters and airways from tension
  11. Teamwork!
  12. Use good body mechanics
- C. Body Mechanics - Definition
  1. Health workers concerned with patient safety and self
  2. Use the proper muscles to do the job
  3. Surgical Technician's job includes moving/lifting
  4. Start with good posture
  5. Keep back straight
  6. Bend from knees and hips
  7. Keep feet separated for good base of support
  8. Use weight of body to help push or pull object
  9. Avoid twisting body as you work
  10. Ask for help prn.
  11. Never move patient with spinal injuries

D. Active/Passive Movements
   1. A.D.L. performed habitually
   2. R.O.M. achieved via work, exercise
   3. Surgical patient requires help moving
   4. Prosthesis possibilities
   5. The need for moving

E. Movements
   1. Flexion
   2. Extension
   3. Abduction
   4. Rotation
   5. Supination
   6. Pronation
   7. Inversion
   8. eversion
   9. Circumduction

XII. Surgical Positions

A. Supine (Dorsal Recumbent)
B. Trendelenburg
C. Reverse Trendelenburg
D. Kraske (Jack-knife)
E. Laminectomy
F. Prone - Craniotomy
G. Lithotomy
H. Fowler's
I. Sims - Lateral Chest, Lateral Kidney
J. Orthopneic

XIII. Positioning Precautions

A. Factors
   1. Maximum safety and comfort
   2. Accessible operative area
   3. Administration of anesthesia

B. Physiologic Effects
   1. Respiratory system
   2. Musculoskeletal system
   3. Nervous system
   4. Circulatory system

C. Equipment for Positioning
   1. O.R. table
   2. Attachments (padding imperative)
   3. Safety belt
   4. Anesthesia screen
   5. Wrist/arm strap
   6. Sand bags
   7. Armboard/double armboards
   8. Elbow pads
   9. Thyroid elevator
   10. Shoulder braces/supports

11. Bolster (shoulder roll)
12. Elevating pads
13. Body rests/braces
14. Kidney rest
15. Stirrups
16. Footboard and headrest

XIV. Skin Preparation

A. Shave Prep and Scrub Prep Rationale
B. Principles of the Shave Prep
    1. Done in patient's room or prep room near surgery
    2. Disposable prep trays
    3. Patient explanation
    4. Lighting
    5. Communicate while laying on hands
    6. Procedure
    7. Safety aspects
    8. Legal aspects
    9. Leave patient dry and comfortable
C. The Scrub Prep - Principles
    1. Performed by
    2. Prior to surgery past anesthesia
    3. Sterile procedure
    4. Scrub and paint agents
    5. Safety aspects
D. Scrub Preps for Specified Areas
    1. Flat surface
    2. Elevated limb
    3. Vagina
    4. Anus
    5. Breast biopsy
    6. Eye
    7. Ear
    8. Face
    9. Emergency

XV. Draping

A. Purposes
B. Orubcuokes
C. Materials
    1. Towels
    2. Sheets
    3. Plastics
    4. Musulin
    5. Paper
    6. Tube stockinette
D. Drapes for Particular Procedures
    1. Procedure drape
    2. Laparotomy drape
    3. Split sheet
    4. Thyroid sheet

5. Perineal sheet
6. Eye or ear drape
7. Craniotomy sheet
8. Draping equipment

E. Applying Drapes
1. Techniques
2. Procedure
3. Flexibility
4. Safety aspects

XVI. Vital Signs

A. Indicate Patient's Condition
B. Surgical Tech Performs on Patient Under Local
C. T.P.R. and B.P.
D. Temperature
1. Definition
2. Normal ranges - children and adults
3. Controlled by hypo-thalamus
4. Heat generated by food breakdown
5. Heat loss through skin, lungs, body discharges
6. Sweat glands and perspiration
7. Environment, clothing, activity, condition of body
8. Balance, homeostasis
9. Variations of temperature
10. Crisis, lysis

E. Abnormalities
1. Febrile state
2. Signs, symptoms of fever
3. Common causes of fever
4. Hypothermia, hyperthermia
5. Implications for surgical patient

F. Measuring Temperature
1. Equipment needed
2. Types of thermometers
3. Reading the thermometer
4. Shaking down the thermometer
5. Oral temperature
6. Rectal temperature
7. Axillary temperature
8. Groin, umbilical temperature
9. Techniques/procedures for measuring
10. Considerations for infants, child

G. Recording Temperature Measurement
H. Thermometer Care
I. 100% Accuracy
J. Safety Aspects
1. Contraindications for oral, rectal thermometer use
2. Thermometer safety
3. Disinfection process

K. Pulse Measurement
1. Definition, normal ranges
2. Review anatomy and physiology of circulatory system

3. Radial pulse
4. Temporal pulse
5. Carotid pulse
6. Brachial pulse
7. Apical pulse
8. Femoral pulse
9. Popliteal pulse
10. Dorsalis pedis
11. neonates, children, adults

L. Principles
M. Techniques/Procedure
N. Abnormalities
1. Weak, thready
2. Full, pounding
3. Irregular or intermittent
4. Bradycardia, tachycardia

O. Accuracy
P. Safety Aspects
Q. Respiration Measurement
1. Definition, normal ranges
2. Review anatomy and physiology of respiration
3. Principles of respiration
4. Techniques/procedure for measuring
5. Vital capacity, tidal volume

R. Abnormalities
1. Dyspnea
2. Apnea
3. Cheyne-Stokes
4. Rales
5. Shallow
6. Accelerated
7. Cyanosis
a. nailbeds
b. circumoral

S. Surgical Technician's Role in Observing
T. Accuracy
U. Safety Aspects

XVII. Blood Pressure

A. Part of Vital Signs
B. Definition
C. Normal Ranges
1. Adults
2. Children

D. Review Anatomy and Physiology of Circulation
1. Heart contraction, relaxation
2. Atria and ventricles
3. Systole and diastole
4. Arterial elasticity
5. Circulation and respiration
6. Cardia output
7. Tissue perfusion

E. Factors Influencing Blood Pressure
    1. Exercise
    2. Diet
    3. Stimulants/depressants
    4. Emotional disturbance
    5. Age
    6. Weight
    7. Blood volume
    8. General condition
F. Equipment
    1. Sphygomomanometer
        a. mercury
        b. aneroid
    2. Stethoscope
G. Techniques/Procedure
H. Deviations from Normal
        1. Hypotension
        2. Hypertension
I. Accuracy
J. Safety Aspects

XVIII. Catheterization of the Bladder

A. Surgical Technician May Perform
    1. Definition
    2. Surgical Technician usually catheterizes female - easier
B. Review Perineal Anatomy
C. Rationale for Catheterization
D. Doctor's Order
E. Necessary Equipment
    1. Cath set
    2. Gloves
    3. Prep solutions
    4. Lubrication
    5. Basin or drainage bag
F. Explain to Patient if Conscious
G. Techniques/Procedures
H. Recording
I. Safety Aspects

XIX. Sponge and Needle Count

A. Definition/Rationale
B. May Include Instrument Count
C. Performed By
    1. Surgical Technician and R.N.
    2. Two R.N.s
D. Individual Counts of Each Sponge, Needle
E. Counting Performed
    1. Before incision
    2. Before closing peritoneum
    3. Before closing pleura
    4. Before closing abdominal fascia
    5. Before closing skin

F. Principles and Guidelines
G. Safety Factors
H. Optimum Dedication to Patient Protection
I. Measures to Locate Unaccountable Items
J. Documentation, Recording
K. Legal Aspects

XX. Surgical Specimens

A. Definition and Rationale
B. Delivery to Scrub Person
C. Equipment Necessary
D. Removing from Sterile Field
E. Pathologist's Role
    1. Stat examination
    2. Routine examination
F. Handling specimens
    1. All team members know procedures
    2. Not handed on sponge
    3. Keep moistened unless told otherwise
    4. Multiple specimens
G. Labelling and Identifying
H. Preservatives
I. All Tissue Foreign Matter Sent to Lab
    1. Biopsies
    2. Screws, plates, bullets
J. Legal Aspects

XXI. Emergencies/Unexpected Events Altering Routine

A. Team Members Remain Alert and Composed
B. Readiness to Respond to the Unusual
C. Massive hemorrhage
    1. Definition
    2. Causes
    3. Rx: expose, arrest, replace
    4. Additional supplies
    5. Use knowledge, expertise and common sense
D. Malignant Hyperthermia
    1. Definition, cause
    2. Rx: established procedures
    3. Rationale of Rx
    4. Being alert, astute, knowledgeable
E. Cardiopulmonary Arrest
    1. Anesthesiologist's/Surgeon's role
    2. Administering C.P.R.
    3. Alarm System
    4. O.R. personnel capable of performing C.P.R.
F. Death of the Patient
    1. Legal, medical definition
    2. Surgeon's decision
        a. pronouncement of death
        b. delay death via artificial measures

3. Hospital policies concerning handling deceased
    a. body
    b. incident report
4. Responsible O.R. personnel know guidelines

G. Power Failure
1. Alternative power source
2. Interim action
3. Personnel know location of flashlights
4. Circulator's responsibilities

H. Fire
1. Announcement
2. Alternatives
    a. stop procedure
    b. evacuate
    c. continue with procedure
3. Personnel required to know policies, specific duties
4. Evacuation of patients done quickly
5. Optimum dedication to patient protection

I. Major Disaster: Triage
1. Definition
2. Classifications
3. Each employee has duty and station
4. Fire department, police department cooperation
5. Personnel required to know disaster plan and personal role
6. Personnel required to know designated areas, functions of areas
7. Spiritual comfort availability very important
8. City disaster plans and drills

XXIII. Cardiopulmonary Resuscitation

A. Definition, Factors for Giving
B. Artificial Respiration
1. Mouth to mouth
2. Mouth to nose
3. Mouth to nose and mouth
4. Ambu-bag

C. External Cardiac Massage
1. Position of hands
2. Patient position
3. Number of compressions
4. Correlation with artificial respirations
5. Adults, children and infants
6. One person C.P.R. and two person C.P.R.
7. Safety aspect

Intraoperative Techniques

I. Aseptic Technique

- A. Definition
- B. Set of Standards
- C. Consequences Resulting from Poor Technique

II. Personnel Attire

- A. Scrub Suit
  1. Material
  2. Donning
  3. Changing
  4. Safety aspects
- B. Cap
  1. Types
  2. Donning
  3. Changing
  4. Covers Hair and sideburns
  5. Safety aspects
- C. Mask
  1. Types
  2. Donning, changing
  3. Never dangling from neck
  4. Safety aspects
- D. Shoes
  1. Approved types
  2. Covers
  3. Hazards and safety aspects

III. Personal Hygiene

- A. Definition
- B. Conducive to Healthy Environment
  1. Daily bath, frequent shampoo
  2. Fingernails short, unpolished
  3. Excessive make-up avoided
  4. Jewelry not worn
  5. Deodorant
  6. Dentition
  7. Sources of contamination
- C. Health and the Health Worker
  1. Definition
  2. Protect self and others
  3. Habits apply to daily life
  4. Physical exam
  5. Dental exam
  6. Immunizations
  7. Diet, elimination
  8. Sleep
  9. Exercise, recreation
  10. Avoid excesses
  11. Work
  12. Homeostasis

IV. Personnel

A. Sterile personnel stay within sterile area
    1. Stay in room during case
    2. Lead shield for x-ray procedures
B. Talking during surgery kept to a minimum
C. Movement kept to minimum during surgery
D. Nonsterile members do not reach over sterile area
E. Sterile team members face each other and sterile field
F. Equipment
    1. Sterilization
    2. Principles of using sterile equipment
    3. Areas of sterility
        a. gowns
        b. wrappers
        c. surfaces
        d. items

V. Methods that Maintain Asepsis

A. The Scrub
    1. Definition
    2. Principles
    3. Performed by all sterile team members
    4. Two methods
    5. Equipment
    6. Technique/procedure
B. Drying
    1. Position of arms, hands
    2. Principles
    3. Technique/procedure
C. Gowning Self
    1. Principles
    2. Technique/procedure
    3. Circulator's role
D. Gloving Self
    1. Closed technique
    2. Insure sterility
    3. Use routinely
E. Gloving Self
    1. Open technique
    2. Used when only hands need to be covered
    3. Not used routinely for gowning and gloving
F. Removing Gloves Aseptically
    1. Principles
    2. Technique/procedure
G. Distribution of Sterile Goods
    1. Importance of packaging and wrapping
    2. Large pack, central fold
    3. Small pack, envelope style
    4. Peel back wrapper
    5. Pour sterile solutions into sterile basins

VI. Case Classification

A. Ranking of Cases
   1. Post-op infection risk
   2. Amount/source of bacteria in wound
B. Clean Case
   1. No break in aseptic technique
   2. No wound inflammation
   3. No entry of respiratory digestive or G.U. tract
C. Clean Contamination Case
   1. Minor break in technique occurred
   2. Procedures of G.I., respiratory, vagina, G.U. tract
D. Contamination Case
   1. Extensive spillage from G.I. tract
   2. Fresh traumatic wound
   3. Major break in asepsis
E. Infected Case
   1. Known infection
   2. Septic case routine outdated
   3. Terminal decontamination
F. Terminal Decontamination
   1. Washer-sterilizer
   2. Equipment disinfected
   3. Housekeeping decontaminates

VII. Principles of Sterilization

A. Concept of Sterility
B. Definition
C. Methods
   1. Steam under pressure
   2. Ethylene oxide gas
   3. Ionizing radiation
D. Chemicals Used as Disinfectants
E. Terms
   1. Antiseptic
   2. Bacteriostatic
   3. Contaminant
   4. Disinfection
   5. Infection
   6. Autoclave
F. Steam Under Pressure
   1. Most common method
   2. Action of moist heat
   3. Destruction of microbes
   4. Temp, pressure, time
G. Types of Steam Sterilizers
   1. Gravity displacement
   2. Prevacuum sterilizer
H. Gravity Displacement
   1. Air is heavier than steam
   2. Inner chamber, outer jacket
   3. Flash sterilization
   4. Air pockets

I. Prevacuum Sterilizer
   1. Principle of vacuum compared to gravity
   2. Advantage of preventing air pockets
   3. Advantage of great penetrating abilities

J. Loading Steam Sterilizers
   1. Critical to sterilizers
   2. Techniques/procedure
   3. Acceptable measurements and density
   4. Temperature - time standards
   5. Checking manufacturer's specifications

K. Precautions and Safety Aspects
   1. Built in--however
   2. Opening and closing door
   3. Know steam shut-off valve
   4. Removing goods
   5. Sterility indicators
   6. Flash sterilizing precautions
   7. Must know equipment

L. Materials Sterilized by this Method
   1. Stainless steel instruments
   2. Metal basins
   3. Fabric
   4. Rubber items
   5. Glassware
   6. Orthopedic implants
   7. Teflon and Silastic items

M. Operating the Autoclave

N. Sterilization by Radiation
   1. Pre-packaged items
   2. Sutures, sponges, disposable drapes
   3. Safety aspects

O. Gas Sterilization - EO Method
   1. Definition, rationale
   2. Principles
   3. Advantages, disadvantages
   4. Safety aspects
   5. Done in Central Services
   6. Must know principles and safety aspects

P. Materials Sterilized by E.O. Method
   1. Fiberoptics
   2. Woven silk catheters
   3. Plastic items
   4. Electrical supplies
   5. Vascular implants

VIII. Disinfectants

A. Definition

B. Advantages

C. Major Uses in O.R.
   1. Floors, furniture, equipment
   2. Surgical instruments

D. Safety aspects
E. Types
F. Procedure for Disinfecting Endoscopes
G. Antiseptics, Definition
H. Uses
    1. Pre-op skin cleanser
    2. Pre-op scrub for personnel
I. Safety Aspects
J. Tyeps Commonly Used

IX. Preparing Supplies for Sterilization

A. Steam Sterilization
    1. Instruments - Open/disassemble
    2. Metal basins - separate by towel
    3. Glass syringes
    4. Hollow objects
B. Gas Sterilization
    1. Goods must be dry
    2. Specified plastic wrappers prn
    3. Labelling
C. Radiation
    1. Pre-packaged
    2. Single use only
D. Sterility Indicators and Process Monitors
    1. Sterilization effectiveness
    2. Tape method
    3. Paper strips
    4. Glass vials
    5. Biological controls
    6. J.C.A.H. recommendations

X. Sterile Items - Shelf Life

A. Definitions
B. Principles
C. Dating Items
D. Integrity of Wrapper
E. Atmospheric Conditions
F. Handling Packs

XI. Maintaining Environmental Control

A. Efficiency
    1. Personnel
    2. Physical organization of O.R.
B. Design of the O.R.
    1. Simple, easy to clean
    2. Prevent cross contamination
    3. Clean, unclean areas
    4. Safe, transportation areas
    5. Control of in and out traffic
    6. Recovery room in close proximity

C. Areas Within Department
    1. Supervisor's office
    2. Recovery room (P.A.R.)
    3. Dressing rooms
    4. Holding area
    5. Substerile rooms
    6. Scrub sink areas
    7. Workroom
    8. Sterile supply room
    9. Storage areas
    10. Anesthesia supply room
D. The Operating Suite
    1. Definition
    2. Enough room to move about
    3. Easy to clean
    4. Sufficient lighting
E. O.R. Suite Equipment
    1. Wall clock with sweep hand
    2. Intercom system
    3. X-Ray viewing boxes
    4. Electrical outlets
    5. Lights
    6. O.R. table
    7. Mayo stand
    8. Back table
    9. Anesthesia equipment
    10. Supply cabinets
    11. Ring stands
    12. Kick bucket
F. Know Equipment
G. Environmental Control
    1. Set by J.C.A.H.
    2. National Fire Protection Association
H. Standards
    1. Temperature
    2. Humidity
    3. Frequent air changes
I. Optimum Dedication to Patient Protection

XII. Incisions

A. Surgeon's Choice
B. Anatomical Location
C. Maximum Exposure
D. Speed, Emergency Measure
E. Maximal Post-op Wound Strength
F. Minimal Post-op Discomfort
G. Cosmetic Effect
H. Tissue Layers - Skin to Peritoneum

I. Types and Locations
   1. Subcostal
   2. Abdominal median
   3. Paramedian
   4. McBurney
   5. Oblique
   6. Pfannenstiel
   7. Transverse
   8. Horizontal flank

XIII. Wound Closure and Healing

A. Mechanisms of Wound Closing
B. Suturing Layers
C. Methods of Suturing
D. Wound Healing Begins When Incision is Made
E. History of Wound Management
   1. Egyptians to Halsted
F. Substrate Phase
   1. 1-4 days
   2. Hemostasis
G. Proliferative Phase
   1. 5 to 20 days
   2. Wound contraction
H. Remodeling Phase
   1. Last phase, 21st day on
   2. Original strength regained
I. Classification of Wound Healing
   1. First, second, third intention
   2. Second suture, delayed primary closure
J. Influential Factors
   1. Age, weight, nutrition, general health
   2. Immune responses
   3. Drug therapy, radiation

XIV. Hemostasis

A. Definition
B. Methods
   1. Body's defense mechanisms
   2. Artificial means
C. During Surgery
   1. Clamp
   2. Ligature
   3. Stick tie
   4. Electro coagulation
   5. Manual pressure
   6. Styptics
   7. Bonewax
   8. Thrombin
   9. Gelfoam
   10. Oxidized cellulose
   11. Hemoclip
   12. Heat
   13. Vitamin K
   14. Tourniquet

XV. Surgery Routines

A. Preparation for Case - Surgical Technician
   1. Check surgical schedule
   2. Check surgeon's preference card
   3. Gather supplies, equipment
   4. Pick, pull supplies
   5. Autoclave instruments as necessary
   6. Communicate with circulator

B. Preparation of Suite
   1. Housekeeping duties
   2. Check lights and suction
   3. Communicate with circulator

C. Opening Supplies
   1. Time factor
   2. Amount to be set up
   3. Techniques of opening
   4. Communicate with circulator

D. Scrub Per Procedure

E. Gown and Glover Per Aseptic Technique

F. Set Up Back Table

G. Drape Mayo Stand

H. Set Up Work Area
   1. Identify sutures and arrange
   2. Count as early as possible

I. Set Up Prep Table

J. Obtain Sterile Instruments
   1. Cool before handling
   2. Body mechanics
   3. Pad sterile table
   4. Count as early as possible
   5. Safety aspects

K. Be Aware, Alert to Patient, What is Happening

L. Set Up Instruments
   1. Mayo stand
   2. Back table

M. Arrange Draping Materials in Order of Use

N. Gown and Glove Surgical Team

O. Readiness After Prep

P. Hand Draping Materials

Q. Suction and Bovie on Field-Affix

R. Two Sponges on Field

S. Scalpel and Clamps on Readiness

XVI. Intraoperative Management

A. Look, Listen, Anticipate

B. Communicate with Circulator

C. Associate What Is Being Done With What Will Be Needed

D. Two Clean Sponges on Field

E. Aware of Sponges Being Used
F. Handing Instruments
    1. Slap with pressure
    2. No need for readjustment
    3. Safety aspects
G. Handing Sutures
    1. One to one basis
    2. All must be returned
    3. Remove remnants from field
    4. Suture book
    5. Needle, blade book
    6. Safety aspects
H. Operative Field
    1. Neat, clean, dry
    2. Wound, field, mayo, back table
    3. Scrub and circulator visualize counts
    4. Safety aspects
I. Specimens
    1. Identification
    2. Desired exam
    3. Receptacle
    4. Give to circulator with Surgeon's permission
    5. All specs sent to lab
J. Advocacy
    1. Tactful reminders, leaning on patient
    2. Team technique
K. Closure
    1. Prepare suture, drains
    2. Accept dressing sponges after count
    3. Prepare instruments for decontamination
    4. Remain sterile - with table - until patient leaves room
L. Post-Op Clean Up
    1. Glove hands
    2. Breakdown back table
    3. Safety aspects
    4. Team work
    5. Germicide table and remake
    6. Germicide horizontal surfaces
    7. Optimum dedication to patient protection

Supplies and Equipment

I. Instrumentation

- A. Definition
- B. Classification
- C. Cutting, Dissecting
  1. Scissors
  2. Scalpels
  3. Osteotomes
  4. Curettes
  5. Chisels
  6. Biopsy punches
  7. Saws
  8. Drills
  9. Needles
- D. Grasping and Clamping
  1. Hemostatic clamps
  2. Needle holders
  3. Tenaculi
- E. Retracting Instruments
  1. For all parts of the body
  2. Sizes
  3. Hand held
  4. Self-retaining
- F. Probing and Dilating
  1. Probes enter lumen
  2. Dilators increase diameter of lumen
- G. Identifiable Parts of an Instrument
  1. Points, tips close tightly
  2. Jaws, hold securely
  3. Serration
  4. Box lock, hinge joint
  5. Shank, between box lock and finger ring
  6. Ratchets
- H. Testing for Defects
  1. Check frequently
  2. Send for repair
- I. Care of Instruments
  1. Expensive, require care
  2. Handle gently
  3. Sharp edges must not touch metal surfaces
  4. No soaking in saline
  5. Wipe blood
  6. Right instrument for right job
- J. Care of Instruments After Surgery
  1. Decontaminate right after surgery
  2. Process all instruments from case
  3. Use appropriate technique

K. Processing Stainless Steel Instruments
    1. Costly, delicate
    2. Shortcuts shorten life span
    3. Do not wash by hand
        a. health hazard to personnel
        b. time consuming, inefficient
    4. Use washer/sterilizer
    5. Ultrasonic cleaning (cavitation)
    6. pH important
    7. Lubricate before wrapping
    8. Water soluble lubricant
    9. Manufacturer's recommendations
    10. Safety aspects
L. Commonly Used Surgical Instruments
    1. Scalpel handles, numbered
    2. Blades, numbered
    3. Scissors
        a. bandage
        b. mayo
        c. metzenbaum
    4. Thumb forceps
        a. toothed
        b. plain
        c. Cushing
        d. Russian
        e. Adson
    5. Retractors
        a. Army-Navy
        b. Vein
        c. Senn
        d. Goulet
        e. Parker
        f. small, large rake
        g. Richardson
        h. Israel
        i. malleable
        j. appendectomy
        k. Deaver
        l. Harrington
        m. Balfour
        n. Weitlaner
    6. Hemostatic clamps
        a. mosquito
        b. Pean
        c. Schnidt-tonsil
        d. Kelly
        e. Kocher-Oschner
        f. Crile
    7. Needle holders
    8. Suction tips
        a. Poole
        b. Yankauer
        c. Andrews

9. Miscellaneous
    a. towel clamp
    b. sponge forceps
    c. grooved director
    d. pennington
    e. Allis
    f. probe, malleable
    g. Trochar
    h. scoops
    i. dilators
    j. uterine packing forceps
    k. tenaculum
10. Handling and passing instruments
    a. passing
    b. hand signals
    c. anticipating needs
    d. techniques, procedures

II. Suture

A. Definition, Functions
B. Types
    1. Absorbable
        a. Catgut - plain, chromic
        b. synthetic
    2. Non-Absorbable
        a. cotton
        b. polyester
        c. nylon
        d. polypropylene
        e. steel
C. Sizing and Packaging
D. Application of Suture
    1. Surgeon's preference
    2. Healing time
    3. Suture strength
    4. Principles
    5. Techniques
E. Preparing and Handling Suture
    1. Costly
    2. Protection of material
    3. Handling techniques
        a. cotton
        b. nylon and polypropylene
        c. steel
        d. gut

III. Surgical Needles

A. Definition, Functions
B. Classification
    1. Shape
    2. Type of point

C. Shape
    1. Amount of curvature
    2. Fully curved on needle holder
    3. Straight held in hand
D. Point and Shaft
    1. Point determined by tissue delicacy
    2. Taper, cutting, inverted points
    3. Shaft, cutting or smooth
    4. Hundreds of types
E. Needle Eye
    1. Definition
    2. Designed for minimal trauma
    3. Eye, rectangular or square
    4. French eye
    5. Atraumatic, eyeless
    6. Suture release
    7. Double-arm
F. Surgeon's Preference
G. Mounting the Needle
H. Threading the Needle
I. Passing the Needle Holder
J. Methods of Suturing
    1. Running stitch
    2. Interrupted
    3. Advantages, disadvantages
    4. Principles
    5. Retention suture and bolsters, bumpers
    6. Suture ligature
    7. Purse string
K. Nonsuture Products
    1. Sterile tapes
    2. Wound clips
    3. Ligation clips
    4. Stapling instruments
    5. Principles
    6. Techniques/procedures for handling and passing to surgeon

IV. Accessory Supplies

A. Electrosurgical Unit
B. Definition, Functions
C. Equipment
D. Types
    1. Monopolar
    2. Bipolar
E. Safety Aspects
F. Application, Procedure
    1. Scrub person's role
    2. Circulator's role

V. Suction Equipment

A. Functions
B. Common Uses
C. Types
D. Safety Aspects
E. Techniques, Procedures
F. Role of Scrub, Circulator

VI. Defibrillator

A. Definition, Principles
B. Function
C. Equipment
D. Procedure
E. Safety Aspects

VII. Fiberoptic Light Source

A. Definition
B. Function
C. Safety Aspects

VIII. Headlight

A. Uses, Types
B. Safety Aspects

IX. Operating Microscope

A. Definition, Function
B. Common Uses
C. Draping Practice

X. Surgical Loupes

A. Definition, Function
B. Uses
C. Worn by Surgeon, Scrub Person

XI. Nitrogen Tank and Regulator

A. Function, Uses
B. O.R. Personnel's Role
C. Procedure
D. Safety Aspects

XII. Pneumatic Tourniquet

A. Definition, Function
B. Common Uses
C. Technique/Procedure
D. Safety Aspects

XIII. Wound Drains and Tubes

- A. Functions
- B. Principles
- C. Types
- D. Techniques, Procedures
- E. Safety Aspects

XIV. Surgical Sponges

- A. Functions
- B. Types
- C. Synonyms
- D. Safety Aspects

XV. Dressings

- A. Functions
- B. Types
- C. Techniques/Procedures
- D. Safety Aspects

XVI. Syringes and Needles

- A. Definition
- B. Uses
- C. Uses
- D. Technique/Procedure
- E. Safety Aspects

XVII. Nerve Locator

- A. Definition, Function
- B. Common Uses
- C. Techniques/Procedures
- D. Safety Aspects

XVIII. Camera

- A. Uses
- B. Sterilization

XIX. X-Ray Cassette Cover

- A. Function
- B. Maintaining Asepsis
- C. Technique, Procedure

XX. Dermatomes

- A. Definition, Function
- B. Integral Parts
- C. Types
  1. Oscillating blade
  2. Drum
- D. Safety Aspects
- E. Care and Sterilization

XXI. Orthopedic Saws

- A. Definition, Functions
- B. Integral Parts
- C. Types
  1. Reciprocating
  2. Oscillating
  3. Gigli
- D. Safety Aspects
- E. Sterilization

XXII. Physiologic Monitors

- A. Definition, Functions
- B. Types
  1. Stethoscopy
  2. Blood pressure
  3. Temperature
  4. ECG and EEG
  5. Safety

XXIII. Cryotherapy Units

- A. Definition, Functions
- B. Types
- C. Hazards
- D. Safety Aspects

Basic Sciences

I. Anatomy and Physiology

A. Definition and Terminology
1. Science
2. Anatomy
3. Physiology
4. Biology
5. Histology
6. Microbiology
7. Chemistry
8. Physics
9. Pathology

B. The Body as a Whole
1. General plan
2. Body cavities
3. Organization of body

C. Structural Units
1. Cell
2. Tissues
3. Organs
4. Systems

D. Homeostasis
1. Definition
2. Body fluids
3. Method of transport
   a. filtration
   b. diffusion
   c. osmosis

II. Cells, Tissues and Membranes

A. Simple Cell - Definition
1. Structures
2. Functions
3. Simple Cell Division

B. Types of Cells
1. Nerve
2. Muscle
3. Blood
4. Bone
5. Brain
6. Lung

C. Commonalities, Differences

D. Nutrients for Homeostasis

E. Edema, Dehydration

F. Filtration, Osmosis, Diffusion

G. Tissues - Definition
1. Epithelial
   a. skin, hair, nails
   b. protection
   c. lines body tubes and digestive system

2. Connective
    a. bone, cartilage, fibrous, vascular, interspaces
    b. supports, anchors, holds together
3. Muscle tissue
    a. smooth, skeletal, cardiac
    b. provides for movement, pumps blood
4. Nervous tissue
    a. brain, spinal cord, nerves
    b. carries impulses

H. Membranes - Definition
1. General characteristics
2. Two broad categories
    a. Epithelial
    b. Connective tissue
3. Mucous, serous membranes
4. Fascial, skeletal membranes
5. Functions
6. Omentum
7. Peritoneum
8. Mesentary
9. Pleurae
10. Pericardium
11. Mesothelium
12. Perichondrium

III. Integumentary System

A. Definition
B. Structure
1. Epidermis
2. Dermis
3. Subcutaneous layer
4. Glands
5. Hair, nails

C. Function
1. Protection
2. Regulation of temperature
3. Sensory organ
4. Excretory function

D. Observation
1. Pigmentation
2. Discoloration
3. Injuries
4. Diseases

E. Care
1. Cleanliness
2. Preserve/restore
3. Invasion of pathogens
    a. residential
    b. transient

F. Nutrition
1. Vitamin A
2. Riboflavin
3. Niacin

IV. Skeletal System

A. Definition
B. General Functions
    1. Framework for shape
    2. Framework for muscle
    3. Protects internal organs
    4. Manufactures blood cells
    5. Works with muscular system to achieve mobility
C. Classification of Bones
    1. Long
    2. Short
    3. Flat
    4. Irregular
D. Bone Development
    1. Cartilage
    2. Membranes
E. Structure of Long Bones
F. Bone Markings
    1. Openings, depressions
    2. Processes, projections
G. Joints
    1. Description
    2. Types
    3. Movements
H. Bone Groups and Location
    1. Cranium
        a. bones
        b. sutures
        c. fontanels
    2. Face
        a. bones
        b. sinuses
    3. Spine
        a. vertebra
        b. curves
    4. Thorax
    5. Shoulder girdle
    6. Upper extremities
    7. Lower extremities
    8. Pelvic girdle
I. Nutrition
    1. Calcium
    2. Phosphorus
    3. Vitamins A, C, D

V. Muscular System

A. General Functions
    1. Locomotion
    2. changes in position
    3. Changes in size of openings
    4. Propulsion of substances through tubes

5. Survival
6. Maintenance of posture
7. Production of large portion of body heat

B. Classification
1. Skeletal
2. Smooth
3. Cardiac

C. Special Characteristics
1. Irritability
2. Contractility
3. Doncutivity
4. Extensibility
5. Elasticity

D. Characteristics of Skeletal Muscle
1. Structure
2. Control - nervous system
3. Energy - from glycogen
4. Fatigue
5. Actions

E. Kinds of Contraction
1. Twitch
2. Tetanic
3. Tonic
4. Isotonic
5. Isometric
6. Fibrillation

F. Muscle Tone Definition

G. Muscle Attachments
1. Ligaments
2. Tendons
3. Origin
4. Insertion

H. Important Muscles
1. Quadriceps Femoris
2. Triceps
3. Pectoralis major
4. Gluteus maximus
5. Rectus abdominus
6. Gastrocnemius
7. Hamstring group
8. Intercostals
9. Achilles' tendon
10. Biceps
11. Trapezius
12. Sternocleidomastoid
13. Lattisimus dorsi
14. Deltoid

I. Protein - Build and Repair Muscle Tissue

VI. Respiratory System

A. Functions
B. Organs of Respiration

52

C. Internal, External, Cellular Respiration
D. Ranges of Normal Rates
    1. Neonate
    2. Child
    3. Adult
E. Variations Affecting Respiration
F. Deviations from Normal
G. Complications of Respiration
H. Respiration and the Surgical Patient
    1. Measure quantity, quality
    2. Intubation, anesthesia
    3. Heart-Lung machine
    4. Respiratory emergencies
    5. Rx
I. Principles of Nutrition Relative to Respiration

VII. The Genito-Urinary System

A. Definition, Functions
B. Organs
    1. Structure
    2. Function
C. Systems of Excretion
    1. Urinary
    2. Digestive
    3. Respiratory
    4. Integumentary
D. Terminology
E. Urinalysis
    1. Components
    2. Functions of components
    3. Relative to surgical patient
F. Complications
G. Accessory Supplies
    1. Catheters
    2. Collection containers
H. The Urinary System and the Surgical Patient
I. Principles of Nutrition Relative to the G.U. System

VIII. The Circulatory System

A. Definition, Functions
B. Circulatory Organs
    1. Location
    2. functions
C. Structures of the Heart
D. Pulmonary Circulation
E. Systemic Circulation
F. Conduction System
G. Blood
    1. Composition
    2. Volume
    3. Blood clotting
    4. Blood types
    5. Blood tests

H. Blood Vessels
   1. Types
   2. Structures and functions
I. Blood Pressure, Pulse, Vital Signs
J. Deviations from Normal
K. The Circulatory System and the Surgical Patient
L. Nutritional Considerations

IX. The Lymphatic System

A. Definition, Functions
B. Lymphatic Circulation
   1. Complements blood circulation
   2. Resembles venous circulation
C. Lymph Vessels
   1. Lymph nodes
   2. Lymph capillaries
   3. Lymphatics
   4. Left and right lymphatic ducts
D. Lymph
   1. Definition
   2. Composition
E. Nodes, Lymphoid Tissue
   1. Structure, functions
   2. Tonsils
   3. Thymus gland
   4. Spleen
F. Deviations from Normal
G. The Pre-op Patient and Lymphatic Considerations
H. Nutritional Considerations

X. The Central Nervous System

A. Definition, Functions
B. Nerves
C. Headquarters of C.N.S.
D. C.N.S. Operations
   1. Neuron
   2. Dendrites
   3. Axons
   4. Synapses
E. Sensory Nerves
F. Motor Mechanisms
G. Cranium and Spinal Cord
H. Cranial Nerves, 12 Pair
I. Spinal Nerves, 31 Pair
J. The Cerebrum
   1. Structures
   2. Functions
K. Cerebellum
L. Pons
M. Medulla
N. Peripheral Nervous System

O. Autonomic Nervous System
P. Deviations from Normal
Q. Nutritional Aspects

XI. The Sensory System

A. Definition, Functions
B. Structure and Function of Sensory Receptors
C. Classification of Sensory Receptors
    1. External environment
    2. Balance
    3. Viscera
D. Six Senses
E. The Eye
    1. Structures
    2. Functions
    3. Errors in refraction
    4. Deviations from normal
F. The Ear
    1. Structures
    2. Functions
    3. Deviations from Normal
    4. Common Complications
G. Taste - Tongue REceptors
H. Touch - Tactile Corpuscles
I. Pain - Non-Adaptive, Protects
J. Position - Muscles and Semi-Circular Canals
K. Smell - Olfactory Nerve
L. Hunger, Appetite
M. Thirst
N. General Senses
    1. Pressure
    2. Temperature

XII. Digestive System

A. Definition, Functions
B. Components
    1. Alimentary canal
    2. Accessory organs
C. Alimentary Canal
    1. Oral cavity
    2. Pharynx
    3. Stomach
    4. Small intestine
    5. Large intestine
    6. Rectum, anus
    7. Disorders
D. Accessory Organs of Digestion
    1. Liver
    2. Gallbladder

3. Pancreas
4. Peritoneum
5. Disorders

E. Nutrition
1. Balanced diet
2. Malnutrition

XIII. The Reproductive System

A. Reproduction
1. Asexual
2. Sexual

B. Male Reproductive System
1. Structures
2. Functions
3. Disorders

C. Female Reproductive System
1. Structures
2. Functions
3. Disorders

D. Pregnancy
1. Stages of pregnancy
2. Development of embryo
3. The fetus
4. The mother
5. Childbirth
6. Lactation
7. Multiple births
8. Disorders

E. Menopause
1. Definition
2. Treatment
3. Disorders

XIV. The Endocrine System

A. Glands and Hormones
1. External secretions
2. Internal secretions
3. Exocrine glands
4. Endocrine glands

B. Thyroid Gland
1. Location
2. Functions
3. Disorders
4. Treatments

C. Sex Glands
1. Ovaries
2. Testes

D. Parathyroid Glands
1. Location, functions
2. Disorders, treatments

E. Pituitary Gland
   1. Anterior lobe
   2. Posterior lobe
   3. Disorders, treatments
F. Pancreas
   1. Location, functions
   2. Disorders, treatments
G. Adrenal Glands
   1. Adrenal medulla
   2. Adrenal cortex
   3. Disorders, treatments
H. Thymus and Pineal Body
   1. Location, functions
   2. Disorders, treatments

XV. Microbiology and Pathology

A. Sciences
B. Discovery of Microorganisms
   1. Animalcules
   2. Vaccination
   3. Sterilization
   4. Penicillin
   5. Vaccines
C. History of the Microscope
   1. Structures
   2. Functions
   3. Procedure for operating
D. Microorganism or Protist
E. Description of Microorganism
   1. Fungi (yeast, molds)
   2. Protozoa (amoeba)
   3. Rickettsia
   4. Bacteria (cocci, bacilli, spirochete)
   5. Virus
F. Microorganisms Producing Disease
   1. Types of bacteria which produce disease
      a. Aerobic
      b. Anerobic
      c. Saphrophytes
      d. Pathogens
      e. Parasites
   2. Requirements to product disease
      a. virulence
      b. proper environment (host)
      c. entry of organisms
   3. Growth and reproduction of bacteria
   4. Spore formers
G. Laboratory Identification of Microbes
   1. Acid-fast organisms
   2. Gram stain
   3. Culturing
   4. Fermentation
   5. Seriology

H. Etiology of Disease
   1. Definition
   2. Specific or predisposing causes
   3. Trauma-physical or chemical
   4. Genetic disorders
   5. Congenital defects
   6. Parasites
   7. Obstruction
   8. Deficiency diseases
   9. Degenerative diseases
   10. Neoplasms
   11. Infections

XVI. Pathology

A. Definition
B. Changes Produced by Disease
   1. Changes in cell structure
   2. Functional changes
   3. Chemical changes
C. Body Defenses Against Illness
   1. External
   2. Internal
   3. Immunity
D. Transmission of Disease
   1. Direct
   2. Indirect
   3. Food, water, air, dust
   4. Domestic animals
   5. Insects and vermin
   6. Human carriers
E. Portals of Entry
   1. Respiratory tract
   2. Alimentary tract
   3. Genito-urinary tract
   4. Skin
F. Methods of Control
   1. Sterilization
   2. Antisepsis
   3. Disinfection
G. Universal Precautions (AIDS and Hepatitis)
   1. Definition/Acronym
   2. History
   3. Modes of Transmission
   4. Body Defenses
   5. Signs/Symptoms
   6. Treatment
      a. palliative
      b. experimental
      c. active research
   7. Control of disease
      a. blood testing
      b. preventive measures
      c. research

8. Implications
   a. medical/surgical patient
   b. health workers
   c. surgical team
   d. general population
   e. surgical conscience
   f. planning for the future
9. Blood and Body Fluids
   a. exposure
   b. activities
   c. hand washing/barriers
10. Implementation of Universal Precautions
   a. hand washing
   b. gloves
   c. gowns
   d. masks
   e. glasses/goggles
11. Compliance responsibilities
   a. hospital
   b. department of surgery
   c. individual

XVII. Chemistry

A. Definition
B. Principles
   1. Digestion of food
   2. Action of hormones
   3. Chemical changes in cells
   4. Acid-base balance
   5. Pharmacology
   6. Lab tests
C. Matter and Energy
   1. Solids
   2. Liquids
   3. Gases
   4. Elements
   5. Compounds
   6. Mixtures
D. Physical and Chemical Properties
E. Electron Theory
   1. Electrons
   2. Protons
   3. Neutrons
F. Unstable or Radioactive Elements
   1. Alpha, beta, gamma rays
   2. Heat
G. Heat, A Form of Energy
   1. Fahrenheit
   2. Celcius
   3. Calories
   4. Vaporization
H. Acids
   1. Properties
   2. Examples

I. Bases
   1. Properties
   2. Examples
J. pH
   1. Neutral = 7
   2. Acid = less than 7
   3. Alkaline = more than 7
   4. Blood, alkaline
   5. Gastric juice, acid
   6. Saliva, neutral
K. Solutions
   1. Solvent
   2. Solute
L. Oxygen
   1. Properties
   2. Uses
M. Nitrogen
   1. Properties
   2. Uses

XVIII. Immunity, Vaccines and Serums

A. Infection
   1. Portal of entry
   2. Virulence of pathogen
   3. Number of pathogens
   4. Resistance of body
B. Defense Against Disease
   1. Skin and mucous membranes
   2. Reflex actions
   3. Phagocystosis
   4. Inflammation
   5. Immunity specifics
C. Immune Process
   1. Antigen-antibody reaction
   2. Immunity process
D. Types of Immunity
   1. Inborn or acquired
   2. Natural or artificial
   3. Active or passive
E. Vaccines and Serums
F. Allergy
   1. Foreign protein
   2. Allergens
   3. Desensitization
   4. Antihistamines
   5. Nervous disturbances
G. Transplants and Rejection Syndrome

XIX. Basic Nutrition

- A. Nutrition and Surgical Technology
  - 1. Definition
  - 2. General considerations
  - 3. Related terms
- B. Characteristics of an Adequate Diet
  - 1. Nutritional patterns
  - 2. Nutritional trends
- C. Functions of food
- D. Key Nutrients
- E. Carbohydrates
  - 1. Functions
  - 2. Deficiencies
  - 3. Sources
- F. Fats
  - 1. Functions
  - 2. Deficiencies
  - 3. Sources
  - 4. Digestion
- G. Protein
  - 1. Functions
  - 2. Deficiencies
  - 3. Sources
  - 4. Digestion
- H. Minerals
  - 1. Functions
  - 2. Deficiencies
  - 3. Sources
- I. Vitamins
  - 1. Functions
  - 2. Deficiencies
  - 3. Sources
- J. Water
  - 1. Functions
  - 2. Deficiencies
  - 3. Sources
- K. Energy Requirements
- L. Basic Four (4) Food Groups
  - 1. Vegetables and fruits
  - 2. Milk group
  - 3. Meat group
  - 4. Bread and cereal
- M. Menu Evaluation
  - 1. Physical and mental health
  - 2. Weight maintenance
  - 3. Energy
  - 4. Feeling of well being

XX. Surgical Pharmacology

A. Weights and Measures
B. Pharmacology - Definition
C. Surgical Technician's Role
    1. Mixing solutions
    2. Calculating proportions
    3. Performing conversions
D. Metric System
E. Apothecaries' or English System
F. Review
    1. Fractions
    2. Decimals
    3. Percentages
    4. Ratio
    5. Proportion
G. Calculating Doses/Proportions
H. Accepting Medications in Surgery
    1. Step-by-step procedure
    2. Precautions in handling
I. Medications Used in Surgery
    1. Types, routes
    2. Injectables, topicals
    3. Irrigation
    4. Diagnostic
    5. Blood expanders
    6. Intravenous
J. Supplies and Equipment Used with Medications
    1. Medicine glass
    2. Syringe and needle
    3. Bulb syringe and basin
    4. Eye dropper
    5. Ear syringe
    6. Vaporizer
    7. Finger cot
    8. I.V. bag, bottle, tubing
    9. Armboard
    10. Tourniquet
K. Common Surgical Meds
    1. Anticoagulants - definition
        a. Dicoumarol
        b. Liquamar
        c. Heparin
        d. Warfarin
    2. Coagulants - definition
        a. Gelfoam
        b. Oxycel
        c. Avitene
        d. Thrombin
    3. Oxytocics - definition
        a. Pitocin
        b. Syntocin
        c. Sparteine SO_4

4. Steroids - definition
    a. examples
    b. uses
5. Antibiotics - definition
    a. examples
    b. uses

L. Contrast Media
1. Definition
2. Uses
3. Examples, commonly used

M. Dyes
1. Uses
2. Examples, commonly used

N. Diuretics
1. Definition
2. Uses
3. Commonly used examples

O. Analgesics
1. Definition
2. Uses
3. Commonly used examples

P. Emergency Drugs
1. Uses
2. Functions
3. Examples
    a. Aminocadol
    b. Aminophylline
    c. Cardiophyllin
    d. Dopram
    e. Digitoxin
    f. aramine
    g. Adrenalin
    h. Apifrin
    i. Levophed
    j. Lidocaine
    k. Sodium bicarbonate

Q. Blood Substitutes

R. Saline Solutions

S. Blood

XXI. History of Surgery

A. Definition, Surgery

B. Pain, Bleeding, Infection Hampered Progress

C. Pain
1. Ancient remedies
2. 1800's - ether and chloroform
3. 1900's

D. Hemorrhage
1. Greeks and Romans
2. Dark and Middle Ages
3. 1500's
4. 1600's
5. 1870's
6. 1900's

E. Infection
    1. Egypt, 3000 B.C. to 1500 B.C.
    2. 460 B.C.
    3. Greece, Hippocrates
    4. Rise of Christianity
    5. Rise of monasteries and barbers
    6. 1100's Hugo of Lucca
    7. Mid 1800's
    8. Major pioneers
        a. Pasteur, Lister, Koch
        b. VonBengman, Chamberlain
        c. Hallsted
        d. Bloodgood

XXII. Lasers

A. Definition and Terminology
B. Therapeutic Utilization
    1. Medicine/surgery
    2. Nuclear physics
    3. Industry
C. Types
    1. Argon
    2. Ruby
    3. Carbon dioxide
    4. ND:YAG
    5. Excimer
D. Physiology of Lasers
    1. Pulsed laser systems
    2. Continuous wave lasers
E. Selected Uses
    1. Color absorption dependency
    2. Gynecology
    3. Laryngology
    4. Neurosurgery
    5. Cardiovascular
    6. Peripheral vascular
    7. Gastrointestinal
    8. Opthamology
    9. Dermatology
F. Safety Precautions
    1. Patient teaching/support
    2. Principles of flammability
    3. Eye/mask protection
    4. Smoke evacuating suction devices
    5. Accessible sterile saline
    6. Draping considerations
    7. Fire extinguisher on hand
    8. Posting warning signs

G. Laser Team Responsibilities
    1. Patient
    2. Physician
    3. Circulating Nurse
    4. Surgical Technician
    5. Housekeeping
    6. Written policies
    7. In-Service education
H. Advantages/Disadvantages
    1. Contraindications
    2. Diagnostic tool
    3. Physiologic studies
    4. Hemostatic agent
    5. Inaccessibility of organs
    6. Time
    7. Credentialing (Team)
    8. Cost
    9. Safety
I. Futuristic Considerations

XXIII. Introduction to Computers

A. Definition and Terminology
B. Technology for Medical Field
C. Physiology of Computers
D. Types/Uses
    1. Education
    2. Health Facilities
    3. Home/Personal Use
E. Objectives
    1. Individualized learning
    2. Resume construction
    3. Job application

Supervised Experience

I. Supervised Practice in Surgical Technology

A. Orientation to _____ Hospital
B. Introduction to Faculty
C. Philosophy of Hospital
D. Philosophy of Operating Room Department
E. Hospital and Department Policies
F. Clinical Objectives
G. Methods of Evaluation
H. Physical Environment
    1. Department of surgery
    2. Post-surgical departments
I. Safety Standards/Measures
    1. Fire
    2. Electrical hazards
    3. Incident reports
    4. Personnel health clinic
J. Central Supply Services
    1. Functions
    2. Experience objectives
K. Library
L. Cafeteria

II. Surgical Procedures

A. General Surgery
B. Definition
C. Historical Summary
D. Pathology Prompting Surgical Intervention
    1. G.I. tract
    2. Biliary system
    3. Spleen
    4. Pancreas
    5. Liver
    6. Hernias
    7. Procedures of breast
    8. Thyroid gland
E. Instruments, Sutures, Supplies
F. Positioning
G. Draping
H. Preps
I. Anesthesia
J. Incisions

III. Obstetrical and Gynecological Surgery

A. Definition
B. Historical Summary

C. Pathology Prompting Surgical Intervention
    1. Abdominal procedures
        a. Hysterectomy
        b. Salpingo - oophorectomy
        c. Tubal ligation
        d. Excision of ovarian cyst
        e. Caesarean section
        f. Laparoscopy
    2. Vaginal Procedures
        a. D and C
        b. conization of cervix
        c. therapeutic abortion
        d. excision cystic Bartholin's gland
        e. repair vesicovaginal fistula
        f. repair rectovaginal fistula
        g. cystocele and rectocele
        h. simple and radical vulvectomy
        i. hysterectomy
D. Instruments, Sutures, Supplies
E. Positioning
F. Draping
G. Preps
H. Anesthesia
I. Incisions

IV. Urogenital Surgery

A. Definition
B. Development of Urology
C. Pathology Prompting Surgical Intervention
    1. Open procedures - nephrectomy
    2. Nephrostomy
    3. Kidney transplant
    4. Pyelolithotomy
    5. Ileal conduit
    6. Uretero lithotomy
    7. Suprapubic cystostomy
    8. Vesicourethral suspension
    9. Prostatectomy
    10. Circumcision
    11. Hypospadias repair
    12. Orchiectomy
    13. Orchidopexy
    14. Vasectomy
    15. Hydrocelectomy
    16. Closed procedures - cystoscopy
    17. Cystometrography
    18. Needlebiopsy of prostrate
    19. T.U.R.
    20. Urethral dilatation
    21. Litholapaxy
D. Instruments, Sutures, Supplies
E. Positioning

F. Draping
G. Prepping
H. Anesthesia
I. Incisions

V. Orthopedic Surgery

A. Definition
B. Development of Orthopedics
C. Pathology Prompting Surgical Intervention
1. Open reduction, internal fixation
2. Closed reduction, internal fixation
3. Joint reconstruction
4. Repair of tendons and ligaments
5. Vertebral Column
6. Extremities
7. Hip, shoulder
8. Arthroscopy
D. Orthopedic Equipment
1. Metal implants
2. Power equipment
3. Hardware
4. Impactors, drivers, extractors
5. Rasps, reamers
6. Osteotomes, curettes, goughes
7. Pin cutters, measuring devices
8. Knives, screwdrivers, elevators
9. Rongeurs, wrenches, saws, drills
10. Casts - types
11. Prostheses
E. Sutures and Supplies
F. Positioning
G. Draping
H. Prepping
I. Anesthesia
J. Incisions

VI. Ophthalmic Surgery

A. Definition
B. Historical Introduction
C. Pathology Prompting Surgical Intervention
1. Excision of ptergium
2. Repair of entropion, ectropion
3. External elevator resection for ptosis
4. Lateral/medial
5. Dacryocystorhinostomy
6. Corneal transplant
7. Enucleation
8. Intraorbital implant and conformer insertion
9. Intracapsular cataract extraction
10. Insertion of introcular lens
11. Retinal detachment
12. Glaucoma filtering procedure
13. Closed vitrectomy

D. Operating Microscope
E. Sutures, Sponges, Cautery Unit
F. Instrumentation
G. Special Medications
H. Positioning
I. Draping
J. Preps
K. Anesthesia
L. Incisions
M. Cleaning Instruments

VII. Otologic Surgery

A. Definition
B. Historical Introduction
C. Pathology Prompting Surgical Intervention
   1. Myringotomy with tubes
   2. Stepedectomy
   3. Mastoidectomy
   4. Tympanoplasty - types
D. Special Equipment
E. Dressings
F. Instruments, Sutures, Supplies
G. Positioning - Patient, Staff
H. Draping
I. Preps
J. Anesthesia
K. Incisions

VIII. Nose, Throat and Oral Surgery

A. Definition
B. Pathology Prompting Surgical Intervention
   1. Nasal septal reconstruction
   2. Caldwell-Luc procedure
   3. Laryngoscopy
   4. Tonsillectomy and adenoidectomy
   5. Radical neck dissection
   6. Dental procedures - extraction
C. Instruments, Sutures, Supplies
D. Positioning
E. Draping - Special
F. Prepping
G. Anesthesia
H. Incisions

IX. Plastic and Reconstructive Surgery

A. Definition
B. Development of Plastic Surgery
C . Pathology Prompting Surgical Intervention
   1. Skin grafting - split and full
   2. Pedicle grafts
   3. Rhytidectomy

4. Blepharoplasty
5. Dermabrasion
6. Microtia
7. Correction of lop ears
8. Rhinoplasty
9. Repair of cleft palate/cleft lip
10. Chin implant
11. Application of arch bars
12. Repair of fractured mandible
13. Repair of fractured zygoma
14. Repair of fractured maxilla
15. Reduction mammoplasty
16. Augmentation mammoplasty
17. Burns

D. Instruments, Sutures, Supplies
E. Positioning
F. Draping
G. Prepping
H. Anesthesia
I. Incisions

X. Thoracic Surgery

A. Definition
B. Historical Development
C. Pathology Prompting Surgical Intervention
1. Bronchoscopy
2. Mediastinoscopy and otomy
3. Thoracotomy
4. Thoracotomy - open and closed
5. Lung resection, lobectomy, pneumonectomy
6. Thoracoplasty
7. Pulmonary decortication
8. Repair of hiatus hernia
9. Correction of pectus excavation
10. Fractured ribs
11. Penetrating wounds
12. Thoracentesis
13. Closure of sucking wound
14. Tracheotomy
15. Insertion of chest tubes
16. Lung biopsy

D. Instruments, Sutures, Supplies
E. Positioning
F. Draping
G. Prepping
H. Anesthesia
I. Incisions

XI. Cardiovascular-Peripheral Vascular Surgery

A. Definition
B. Historical Development
C. Pathology Prompting Surgical Intervention
    1. Mitral comissurotomy
    2. Mitral valve replacement
    3. Excision of ventricular aneurysm
    4. Coronary artery bypass graft
    5. Insergion of cardiac pacemaker
    6. Median sternotomy
    7. Cardiopulmonary bypass
    8. Replacement of pacemaker battery
    9. Aortic valve replacement
    10. Total correction of tetralogy of fallot
    11. Peripheral vascular arterial bypass
    12. Femoral popliteal bypass
    13. Carotid endarterectomy
    14. Embolectomy
    15. Arteriovenus shunts and fistulas
D. Instruments, Sutures, Supplies
E. Positioning
F. Draping
G. Prepping
H. Anesthesia
I. Incisions

XII. Neurosurgery and Peripheral Nerve Surgery

A. Definition
B. Historical Introduction
C. Diagnostic Procedures
    1. Angiography
    2. Myelography
    3. Pneumoencephalography
    4. Ventriculography
    5. Echoencephalography
    6. Cat scan
D. Pathology Prompting Surgical Intervention
    1. Neurorrhaphy
    2. Sympathectomy
    3. Lumbar lominectomy
    4. Anterior cervical fusion
    5. Craniotomy
    6. Cranioplasty
    7. Ventriculoatrial shunt
    8. Ventriculoperitoneal shunt
    9. Intracranial microneurosurgery
    10. Excision of spinal cord tumor
    11. Neurolysis
    12. Neurotomy
    13. Neurectomy

E. Instruments, Equipment
F. Sutures, Supplies
G. Positioning
H. Draping
I. Prepping
    1. Shaving
    2. Intraop scrub and prep
J. Anesthesia
K. Incisions

XIII. Job Hunting

A. Look at Today's Job Market
    1. More people
    2. Changing profile
    3. Service industries take lead
    4. Technical society
B. Plan your Approach
    1. Self inventory
    2. List employer possibilities
    3. List possible contacts
    4. Prepare for job interview
C. Where to Look for Jobs
    1. Newspapers
    2. Government
    3. Training centers
    4. Personal contacts
D. Prepare Resume and Letter of Inquiry
E. Prepare for Interview
    1. Find out about organization
    2. Reassure yourself
    3. Be prepared
    4. Dress appropriately
F. Review Education, Certification and Job Opportunities for Surgical Technicians
G. During Interview
    1. Shaking hands
    2. Fill application as directed
    3. Show enthusiasm
    4. Look interviewer in the eye
    5. Posture
    6. Truthfulness
H. Application
    1. Read completely
    2. Follow directions
    3. Print/write clearly
    4. Be concise, complete
I. Before Accepting a Job
    1. Check chances for advancement
    2. Satisfaction of needs
    3. Job location
    4. Working conditions

J. How to Hold a Job
   1. Be realistic
   2. Be patient
   3. Be alert
   4. Be proud
   5. Be cooperative
   6. Be mature
   7. Be dissatisfied until you are the person you want to be

BIBLIOGRAPHY

Unit One - Orientation to the Operating Room

Atkinson, Lucy Jo, et al. Introduction to Operating Room Technique. 6th Ed., New York: McGraw-Hill Book Co., 1986.

Brooks, Shirley M. Fundamentals of Operating Room Nursing. 3rd Ed., St. Louis: The C.V. Mosby Co., 1988.

Fisher, J. Patrick. Basic Medical Terminology. Indianapolis: Bobbs-Merrill Educational Publishing, 1986.

Fuller, Joanna Ruth. Surgical Technology Principles and Practice. 2nd Ed., Philadelphia: W.B. Saunders Co., 1986.

Miller, Dr. Benjamin F., et al. Encyclopedia of Medicine, Nursing and Allied Health. 3rd. Ed., Philadelphia: W.B. Saunders Co., 1986.

Rhodes, Marie J., et al. Alexander's Care of the Patient in Surgery. 7th Ed., St. Louis: The C.V. Mosby Co., 1986.

Wrobel, Eugene. Terminology for the Health Profession. Philadelphia: J.B. Lippincott Co., 1985.

Audiovisuals:

Filmstrips and Cassettes	Resource Address
"Cleaning the Operating Room"	Career Aids, Incorporated
"What Is Stress?"	20417 Nordhoff Street
"Coping With Stress"	Chatsworth, CA 91311
"Stress, The Time Bomb Within" (Parts I through IV)	
"Dealing With Anger" (Parts I and II)	
"Assertiveness: A Behavioral Approach to Self Esteem"	
"Maintaining Self Esteem"	
"Effective Speaking"	
"Effective Listening"	
"Verbal Barriers to Communication"	
"Non-Verbal Barriers to Communication"	

Videos:

"Legal Aspects: But, Dr., You Said"	Davis and Geck, Inc.
"Minimizing The Stress of Surgery"	1 Gasper Street
"Ambulatory Surgery in a Free Standing Unit"	Danbury, CT 06810
"Introduction to the Operating Room"	

Unit Two - Safe Patient Care

Brooks, Shirley M. Fundamentals of Operating Room Technique. 6th Ed., New York: McGraw-Hill Book Co., 1988.

Dison, Norma. Clinical Nursing Techniques. 4th Ed., St. Louis: The C.V. Mosby Co., 1985.

Fuller, Joanna Ruth. Surgical Technology Principles and Practice. 2nd Ed., Philadelphia: W.B. Saunders Co., 1986.

LeMaitre, George D., et al. The Patient in Surgery: A Guide for nurses. 5th Ed., Philadelphia: W.B. Saunders Co., 1986.

Luckman, Joan, et al. Medical-Surgical Nursing. 3rd Ed., Philadelphia: W.B. Saunders Co., 1986.

Rhodes, Marie J., et al. Alexander's Care of the Patient in Surgery. 7th Ed., St. Louis: The C.V. Mosby Co., 1986.

Publications and Periodicals:

Ethicon, Incorporated, 1987. Nursing Care of the Patient in the Operating Room. Somerville, New Jersey.

Audiovisuals:

Filmstrips and Cassettes	Resource Address
"Pre-operative Care" "Admitting the O.R. Patient to Surgery"	Career Aids, Inc. 20417 Nordhoff Street Chatsworth, CA 91311
Videos	
"Surgery Without a Suitcase" "Anesthesiology" "This Patient Is Awake" "Transportation of the Patient to the Operating Room" "Pre-operative Skin Preparation of the Patient"	Davis and Geck, Inc. 1 Casper Street Danbury, CT 06810

Supplies/Equipment:

Thermometers
Sphygmomanometers
Stethoscopes

Unit Three - Intraoperative Techniques

Atkinson, Lucy Jo, et al. Introduction to Operating Room Technique. 6th Ed., New York: McGraw-Hill Book Co., 1986.

Fuller, Joanna Ruth. Surgical Technology Principles and Practice. 2nd Ed., Philadelphia: W.B. Saunders Co., 1986.

Nealon, Dr. Thomas. Fundamental Skills in Surgery. 4th Ed., Philadelphia: W.B. Saunders Co., 1985.

Rhodes, Marie J., et al. Alexander's Care of the Patient in Surgery. 7th Ed., St. Louis: The C.V. Mosby Co., 1986.

Publications and Periodicals:

Davis and Geck, 1987. Intraoperative Routines. Pearly River, New York.

Audiovisuals:

Filmstrips and Cassettes	Resource Address
"Basic Lifting and Moving Patients"	Career Aids, Inc.
"O.R. Draping One: Mastectomy and Lithotomy"	20471 Nordhoff Street
"O.R. Draping Two: Thoracotomy, Laparotomy and Extremity"	Chatsworth, CA 91311
"O.R. Positioning I and II"	
"Scrubbing, Gowning and Gloving"	
"O.R. Skin Prep"	
"Measuring Pulse and Respiration"	
"Measuring Blood Pressure"	
"Measuring Temperature"	
"Introduction to Sterilization"	
"Loading the Autoclave"	

Videos	
"Introduction to the Operating Room"	Davis and Geck, Inc.
"Fundamentals of Aseptic Technique"	1 Casper Street
"Scrubbing, Gowning and Gloving"	Danbury, CT 06810
"Setting Up the Operating Room"	
"Pre-operative Skin Preparation of the Patient"	
"Positioning the Surgical Patient"	
"Transportation of the Patient to the O.R."	
"A Matter of Life and Death"	
"Nursing Care of the Pediatric Patient in Surgery"	

Unit Four - Supplies and Equipment

Atkinson, Lucy Jo, et al. Introduction to Operating Room Technique. 6th Ed., New York: McGraw-Hill Book Co., 1986.

Brooks, Shirley M. Instrumentation for the Operating Room. St Louis: The C.V. Mosby Co., 1988.

Fuller, Joanna Ruth. Surgical Technology Principles and Practice. 2nd Ed., Philadelphia: W.B. Saunders Co., 1986.

Nealon, Dr. Thomas. Fundamental Skills in Surgery. 4th Ed., Philadelphia: W.B. Saunders Co., 1985.

Rhodes, Marie J., et al. Alexander's Care of the Patient in Surgery. 7th Ed., St. Louis: The C.V. Mosby Co., 1986.

Publications and Periodicals:

Davis and Geck, 1987. Perspectives on Sutures. Pearl River, New York.

Ethicon, Incorporated. 1987. Sutures and Needles. Somerville, New Jersey.

Audiovisuals:

Videos	Resource Address
"Surgical Instruments - Care and Handling" "Use of Instruments" "Sponge, Needles and Instrument Counts" "Catheters, Drains, CVP and Arterial lines"	Davis and Geck, Inc. 1 Casper Street Danbury, CT 06810
Slides	
"Ear, Nose and Throat Instrumentation"	Prepared at EWT

Demonstration Kits

Colostomy Kit
Tracheostomy Kit
Surgical Dressings
Catheters
Drains

Unit Five - Basic Sciences

Brooks, William D. Speech Communication. 4th Ed., Dubuque: William C. Brown Publishers, 1988.

Carkhuff, Dr. Robert. The Art of Helping. Amherst, Massachusetts: Human Resource Development Press, 1987.

Carkhuff, Dr. Robert. The Art of Problem Solving. Amherst, Massachusetts: Human Resource Development Press, 1987.

Ferris, Elvira b., et al. Microbiology for Health Careers. 2nd Ed., Albany, New York: Delmar Publishers, Inc., 1986.

Fong, Elizabeth, et al. Body Structure and Functions. 6th Ed., Albany, New York: Delmar Publishers, Inc., 1984.

Fuller, Joanna Ruth. Surgical Technology Principles and Practice. 2nd Ed., Philadelphia: W.B. Saunders Co., 1986.

Jacob, Dr. Stanley W. Elements of Anatomy and Physiology. 4th Ed., Philadelphia: W.B. Saunders Co., 1985.

Kowtaluk, Helen. Discovering Nutrition. Peopria: Charles A. Bennett Co., Inc., 1985.

Memmler, Ruth L., et al. The Human Body in Health and Disease. 6th Ed., Philadelphia: J.B. Lippincott Co., 1987.

Packer, Kenneth, et al. Mental Health. Fairfield, New Jersey: Cebco Standard Publishing Co., 1985.

Thomas, Virginia. Life Sciences for Nursing and Health Technologies. 4th Ed., Long Beach, California: Technicourse, 1985.

Publications and Periodicals

American Medical Association. 1988. The Wonderful Human Machine. (Revised). Chicago.

The American National Red Cross. 1988. Cardiopulmonary Resuscitation. (Revised)

Ethicon, Incorporated. 1986. The Human Body: Its Major Systems and Their Functions. Somerville, New Jersey.

Anatomical Models:

Ear
Eye
Kidney
Knee Joint
Heart
Sacrum
Chest and Abdomen
Skeleton

Resource Address:

Medcom
P.O. Box 3225
Garden Grove, CA 92642

Human Anatomical Charts - 26 Charts

Johns Hopkins Hospital
Baltimore, Maryland

Audiovisuals:

Filmstrips and Cassettes

"Introduction to Anatomy and Physiology"
"Cells, Tissues, Membranes"
"Blood Factors, Groups, Types"
"The Integumentary System"
"The Skeletal System"
"The Muscular System"
"The Central Nervous System"
"Special Senses"

Career Aids, Inc.
20417 Nordhoff Street
Chatsworth, CA 91311

"The Cardiovascular System"
"The Respiratory System"
"The Digestive System"
"The Urinary System"
"The Reproductive System"
"The Endocrine System"
"Immunity in the Human Body"

Slide Presentations

"Eye, Ear, Nose Disorders"
"Skin Disorders"
"Diseases of the Digestive System"
"Musculo-Skeletal Diseases"
"Diseases of the Respiratory Tract"
"Heart Disease"
"Veneral Disease"
"Neurological Disorders"
"Reproductive Tract Disease"

Videos

"Can AIDS Be Stopped?"
"Mammography"
"Disorders of the G.I. Tract"
"Cancer Treatments"
"Laser Surgery"

Resource Address

Prepared at EWT via Video Taping "Better Health" Series

Demonstration Kits:

Blood Typing
Osmosis and Diffusion

Unit Six - Supervised Experience in Surgical Technology and Surgical Procedures

Atkinson, Lucy Jo, et al. Introduction to Operating Room Technique. 6th Ed., New York: McGraw-Hill Book Co., 1986.

Brooks, Shirley M. Instrumentation for the Operating Room. St Louis: The C.V. Mosby Co., 1988.

Fuller, Joanna Ruth. Surgical Technology Principles and Practice. 2nd Ed., Philadelphia: W.B. Saunders Co., 1986.

LeMaitre, George D., et al. The Patient in Surgery: A Guide for Nurses. 5th Ed., Philadelphia: W.B. Saunders Co., 1986.

Nealon, Dr. Thomas. Fundamental Skills in Surgery. 4th Ed., Philadelphia: W.B. Saunders Co., 1985.

Rhodes, Marie J., et al. Alexander's Care of the Patient in Surgery. 7th Ed., St. Louis: The C.V. Mosby Co., 1986.

Publications and Periodicals:

Channing Bete Co., Incorporated. 1987. About Getting a Job. Greenfield, Massachusetts.

Ethicon, Incorporated. 1987. Nursing Care of the Patient in the Operating Room. Somerville, New Jersey.

Audiovisuals:

Filmstrips and Cassettes	Resource Address
"Coronary Artery Bypass Grafting"	Career Aids, Inc.
"Aesthetic Plastic Surgery"	20417 Nordhoff Street
"Abdominal Hysterectomy"	Chatsworth, CA 91311
"Your Breast Biopsy"	
"Prostatectomy"	

Videos	
"Breast Reconstruction with Abdominal Flap"	Prepared at EWT via Video
"Mammography"	taping "Better Health"
"Ureteroscopy"	Series
"Facial Reconstruction"	
"Cochlear Implant"	
"Replantation of Amputated Digits and Toes"	
"Gift of Life: Organ Transplants"	
"Sexually Transmitted Diseases"	
"C-Section"	
"Cataracts and Glaucoma"	
"Hip Replacement"	
"Kidney Dialysis"	
"Laser Surgery"	
"Cancer Treatments"	
"Microneurosurgery"	
"Silicone Implants"	
"Arthroscopy"	